

We claim:

1 1. For a call center having a pool of agents assigned to an inbound state and a pool of agents
2 assigned to an outbound state, a method of optimizing a size of a pool of agents assigned to a
3 preferred state, where said preferred state is one of said inbound state and said outbound
4 state, said method comprising:

5 receiving call information from said call center;

6 optimizing, based on said received information, said size of said pool of agents
7 assigned to said preferred state;

8 determining, based on said optimizing, a change in said size of said pool of agents
9 assigned to said preferred state; and

10 communicating said change to said call center.

1 2. The method of claim 1 further comprising:

2 receiving agent activity information; and

3 if said change indicates an increase in said size of said pool of agents assigned to said
4 preferred state, reassigning a number of idle ones of said agents assigned to the other
5 state to said preferred state, where said number is equivalent to a magnitude of said
6 change.

1 3. The method of claim 1 further comprising:

2 receiving agent activity information; and

3 if said change indicates a decrease in said size of said pool of agents assigned to said
4 preferred state, reassigning a number of idle ones of said agents assigned to said
5 preferred state to the other state, where said number is equivalent to a magnitude of
6 said change.

1 4. The method of claim 3 wherein said reassigning comprises, for a particular idle one of
2 said agents assigned to said inbound state:

3 determining a frequency of state reassignment; and

4 reassigning only if said frequency is less than a threshold.

1 5. The method of claim 1 wherein said preferred state is said inbound state.

1 6. The method of claim 5 wherein said received information includes a call rate.

1 7. The method of claim 6 wherein said received information includes a grade of service
2 specification.

1 8. The method of claim 7 wherein said grade of service comprises a probability that an
2 inbound call will be in a queue for a time longer than a specified time period.

1 9. The method of claim 8 wherein said received information includes an average call
2 duration.

1 10. The method of claim 9 wherein said optimizing comprises determining a smallest positive
2 integer number of agents assigned to said inbound state for which an Erlang C probability,
3 determined given said specified time period, said average call duration and said call rate, is
4 equal to or exceeded by said grade of service probability.

1 11. The method of claim 1 where said communicating is performed once a pre-determined
2 time period and said method further comprises adjusting a length of said pre-determined time
3 period based on a rate of change of said received information.

1 12. The method of claim 1 where said optimizing comprises determining a theoretical size of
2 said pool of agents assigned to said preferred state to meet a required grade of service.

1 13. The method of claim 12 wherein said received information includes a sampled grade of
2 service and said optimizing further comprises adjusting said theoretical size of said pool of
3 agents assigned to said preferred state based on a difference between said sampled grade of
4 service and said required grade of service.

1 14. A method of initializing a call center comprising:

2 determining a maximum size of a pool of agents to be assigned to an inbound state
3 given a maximum expected call rate;

4 communicating said maximum size of a pool of agents to be assigned to an inbound
5 state to said call center;
6 receiving call information from said call center;
7 optimizing, based on said received information, an initial size of said pool of agents
8 assigned to said inbound state; and
9 communicating said initial size of said pool of agents assigned to said inbound state to
10 said call center.

1 15. The method of claim 14 further comprising:

2 determining, based on said initial size of said pool of agents assigned to said inbound
3 state and said maximum size of said pool of agents to be assigned to said inbound
4 state, an initial size of a pool of agents assigned to an outbound state; and
5 communicating said initial size of a pool of agents assigned to an outbound state to
6 said call center.

1 16. The method of claim 14 further comprising inflating said maximum expected call rate to
2 allow said call center to meet a grade of service specification in the event of an instantaneous
3 call rate exceeding said maximum expected call rate.

1 17. An agent assignment server comprising:

2 means for receiving call information from a call center;
3 processor means for optimizing, based on said received information, a size of a pool
4 of agents assigned to a preferred state;
5 processor means for determining, based on said optimizing, a change in said size of
6 said pool of agents assigned to said preferred state; and
7 means for communicating said change to said call center.

1 18. An agent assignment server comprising:

2 a receiver for receiving call information from a call center;

3 a processor operable to:

4 optimize, based on said received information, a size of a pool of agents
5 assigned to a preferred state;

6 determine, based on said optimizing, a change in said size of said pool of
7 agents assigned to said preferred state; and

8 a network interface for communicating said change to said call center.

1 19. An agent assignment server operable to:

2 receive call information from a call center;

3 optimize, based on said received information, a size of a pool of agents assigned to a
4 preferred state;

5 determine, based on said optimizing, a change in said size of said pool of agents
6 assigned to said preferred state; and

7 communicate said change to said call center.

1 20. A computer readable medium for providing program control to an agent assignment
2 processor, said computer readable medium adapting said processor to be operable to:

3 receive call information from a call center;

4 optimize, based on said received information, a size of a pool of agents assigned to a
5 preferred state;

6 determine, based on said optimizing, a change in said size of said pool of agents
7 assigned to said preferred state; and

8 communicate said change to said call center.